

Why Fish Is the Ultimate Superfood

Story at-a-glance

- Eating fish is being touted as a positive factor for becoming pregnant, not only because couples who included fish on the menu engaged in intimacy more often, but because they also conceived more quickly compared to people who didn't eat fish
- People who eat two or more servings of oily fish per week have also been found to have a significantly lower risk of heart attack and stroke, even for individuals who don't make a habit of eating a healthy diet
- One reason mercury contamination in fish is a problem is because larger fish, such as tuna, swordfish and shark, eat smaller fish, and the mercury level is cumulative; as a result, they have exponentially more mercury in them
- Mercury in humans may cause a wide range of conditions, including neurological and chromosomal problems and birth defects
- Other substances found in seafood such as farmed salmon include DNA-destroying ethoxyquin and PCBs (polychlorinated biphenyls), known as one of the most toxic and environmentally persistent chemicals ever created

By Dr. Mercola

You've heard fish is good for you. Avid fishermen on the thousands of lakes and rivers across the U.S. enjoy catching fish for dinner. In the U.S., folks on both the Pacific and Atlantic coasts have found fish to be plentiful, delicious and a good source of protein.

But a new study shows that eating fish is better than first realized: It seems to be a factor that raises the odds of becoming pregnant, not only because couples who included fish on the menu had sex more often, but because they also conceived more quickly compared to people who had something else for dinner instead.

Scientists conducting the study, which was published in *The Journal of Clinical Endocrinology & Metabolism*,¹ interviewed 501 couples who were actively endeavoring to become parents without involving medical intervention and followed them for a year or until they became pregnant, whichever came first.

Each couple kept a journal to record their health and behavioral habits, including what they ate — particularly their individual fish consumption — and the frequency of sexual intercourse. The study was controlled for things like smoking and alcohol intake, physical activity, the age of each individual, education level and other factors. The New York Times notes:

"They found that men who had two or more four-ounce servings of fish a week had a 47 percent shorter time to pregnancy, and women a 60 percent shorter time, than those who ate one or fewer servings a week.

Partners who ate fish also had sexual intercourse, on average, 22 percent more frequently, but the association of eating fish with pregnancy persisted even after controlling for frequency of lovemaking. By 12 months, 92 percent of couples who ate fish twice a week or more were pregnant, compared with 79 percent among those who ate less."²

Mechanism Not Clear, but There Are Clues

Although lead study author Audrey J. Gaskins, a research associate at Harvard, speculates that seafood might improve semen quality and egg release for ovulation, scientists can't really say exactly what the mechanism is for the improved pregnancy rates in regard to higher fish consumption.

She notes, however, that if eating fish has anything to do with bringing couples together, it's more of a behavioral pathway rather than a causal one. A reader commenting on the article suggested that it's the [selenium](#) that may have something to do with the "baby-making merit" of eating seafood, and cited a study published in International Journal of General Medicine, which observes:

*"A significant development in the last 10 years in the study of human infertility has been the discovery that oxidative sperm DNA damage has a critical role in the etiology of poor semen quality and male infertility. Selenium (Se) is an essential element for normal testicular development, spermatogenesis, and spermatozoa motility and function."*³

Scientists in this study found that among 690 men suffering from idiopathic asthenoteratospermia (reduced sperm motility), who'd been given a combined supplement of 400 units of vitamin E and 200 µg of selenium daily for at least 100 days, 52.6 percent of the men (362 of them) had "significantly improved" sperm motility, morphology or both. There were also 75 cases of "spontaneous pregnancy."

A case-controlled study in the U.K., published in the British Journal of Obstetrics and Gynecology,⁴ targeted the selenium status of women with a history of [recurrent miscarriage](#) and found evidence that [selenium deficiency](#) was also a factor when study participants who couldn't carry a pregnancy to term were compared to women who'd had little or no trouble becoming parents.

While the researchers found that the "difference was seen in hair samples but not serum samples and therefore may not represent a simple nutritional deficiency," there was also a "significantly greater proportion of women in the control group who ate cereals, vitamin supplements and liver or kidney."

That said, it's interesting to note that, according to Nutrition Data,⁵ while a 3.5-ounce (100-gram) piece of cooked beef liver contains 57 percent of the daily value or Reference Daily Intake (RDI) of selenium, the same amount of [wild-caught Alaskan salmon](#) provides 67 percent of the RDI in selenium.⁶

The Healthy Aspects of Eating Fish Versus the Toxic Effects of Mercury

Gaskins says he believes women have been "scared off fish" because of the growing threat of mercury poisoning and adds that there's low-level contamination in commonly eaten seafood such as shrimp and [canned tuna](#). As healthy as it may have been to have fish on the menu at least twice a week 100 years ago, the growing problem of tainted waters has led to [fish being contaminated by mercury](#) and other pollutants.

But how does mercury get into the fish in the first place? Primarily, there are mercury "hot spots" where accumulation comes from chlorine production facilities, offshore oil-drilling platforms and coal-burning power plants.⁷ Scientific American notes that while mercury is a naturally occurring element found in plants, animals and elsewhere throughout the environment, human involvement in industrial endeavors for the last 150 years or so has "ratcheted up" the amount of airborne [mercury](#).

It's not a negligible amount — it's substantial. Fish and many types of ocean life ingest the mercury — more specifically, methylmercury cysteine, the type found in seafood — until it finally reaches the humans who eat it. Live Science observes, "Mercury in humans may cause a wide range of conditions including neurological and chromosomal problems and birth defects."⁸ Additionally:

“Once in the water, mercury makes its way into the food chain. Inorganic mercury and methylmercury are first consumed by phytoplankton, single-celled algae at the base of most aquatic food chains. Next, the phytoplankton are consumed by small animals such as zooplankton.

The methylmercury is assimilated and retained by the animals, while the inorganic mercury is shed from the animals as waste products ... Small fish that eat the zooplankton are exposed to food-borne mercury that is predominantly in the methylated form. These fish are consumed by larger fish, and so on until it gets to humans.”⁹

An example of how insidious toxic mercury contamination is has to do with larger fish, such as tuna, swordfish, shark, large bluefish and grouper, having exponentially more mercury in them because they eat smaller fish, and the contamination is cumulative.

Mercury: How It Affects Pregnant Women and Developing Fetuses

Monterey Fish¹⁰ explains that the above ocean fish should be avoided, and includes King mackerel, barracuda, marlin, conger eel, jacks and Gulf of Mexico tilefish. Similarly, steer clear of certain wild freshwater fish, as well, including whitefish, pickerel, pike, walleye and lake trout due to potential [mercury contamination](#). However, here’s an interesting twist to the narrative.

In some cultures, fish is on the menu far more often than in the U.S., especially Japan, a relatively small nation entirely surrounded by water. In fact, it’s consumed four to five times more there than in the U.S. The people have regularly consumed the largest tunas they could catch for centuries, so it’s very likely they accumulated large amounts of methylmercury, apparently without causing problems. But there’s more:

“A number of studies have found that the essential element selenium, high amounts of which are found in ocean fish, sequesters mercury, thus neutralizing its toxic effects. This may be the reason why studies have never shown an epidemic of child developmental problems in coastal populations whose diets have been comprised in large part of seafood.”¹¹

Further, the omega-3 fatty acids in [healthy seafood](#), namely fresh-caught Alaskan salmon, sardines, mackerel, herring and anchovies, are essential for your overall health. If you do not eat fish for whatever reason, I recommend that you take a quality supplement to supply it.

My best recommendation is krill oil, which is animal based and contains the highly crucial EPA and DHA [omega-3s](#) your body needs. EPA and DHA are important for your heart and brain, cellular and mitochondrial function, bone health and mood regulation, as well as for healthy fetal development and pregnancy.

On the other hand, methylmercury poses the greatest threat to the nervous system while unborn babies and newborns are developing — their brains, immune and nervous systems and retinas, in particular. It easily penetrates the placenta, where the mercury concentration in red blood cells may be 30 percent higher than in those of the baby’s mother.

More Caveats Regarding Fish Consumption

A Timeline of U.S. and World Aquaculture¹² indicates that the multimillion-dollar fish farming industry began, no doubt, with the very best intentions (like feeding people), but as with arguably every other global enterprise, problems occur (and continue to occur) that are as varied and unpredictable as your average fishing expedition. Some highlights:

- Carp were farmed in China in rice paddies and freshwater ponds as early as 3500 B.C. Egyptian hieroglyphics show tilapia being rounded up into aquacultures, with Japan joining the ranks in 2000 B.C.
- The first real fish farming as we know it may date to the 1400s, when Indonesians trapped young milkfish in coastal ponds when the tide was high. True modern-day methods may be traced back to a German farmer who gathered trout eggs, fertilized them, then nurtured the hatched fish to maturity.
- Then in 1853, a trout farm in Ohio became the first official fish farm in the U.S., as it was the first to artificially fertilize its fish eggs. The concept grew to similar endeavors in New England in the late 1800s to raise lobsters and flounder, and Idaho for trout in 1909.
- Franklin D. Roosevelt even had a farm pond program in which the concept was encouraged and federal subsidies offered for farms willing to build and stock fishponds. Similar operations began in the Caribbean, South America, the Mediterranean, Norway and Scotland by the 1960s and, by 1985, Australia.

No one could have predicted some of the problems: Sea lice caused the collapse of an Irish Sea trout fishery; Alaska banned netpen fish farms, shrimp farms collapsed worldwide due to disease; British Columbia placed a moratorium on new salmon farms to conduct an environmental review; and Canadian researchers procured a patent for transgenic (aka genetically engineered or GE) salmon. And that was just in the 1990s.

Can It Get Worse? The Trouble With Fish Today

Since then, setbacks have varied: Farmed salmon production exceeded the amount of wild-caught salmon in 1999; nearly 3 million Atlantic salmon reportedly escaped from farms in British Columbia, Washington, Maine and Scotland in 2001, the same year infectious salmon anemia forced Maine salmon farmers to slaughter over 1 million fish.

From the traces of illegal antibiotics found in an Asian shrimp farm in 2002 to the gross violations of the Clean Water Act¹³ in a Maine-based salmon farm in 2003, and certainly the toxicology tests revealing farmed salmon to be one of the most toxic foods in the world — more than five times more toxic than any other food tested¹⁴ — clearly the industry as a whole has some 'splainin' to do.

The guidelines for [clean-eating seafood](#) are the same for everyone as they are outlined for pregnant moms: Fresh-caught Alaskan salmon, [sardines](#), mackerel, herring and [anchovies](#) are your best bets in regard to healthiest seafood. Some people might think farmed fish must be the healthiest and most environmentally responsible choice, but in many respects, fish farming, aka aquacultured fisheries, aren't much different from the land-loving [CAFOs](#) — concentrated animal feeding operations.

One of the worst problems is salmon pens placed next to wild salmon runs, which seriously threatens the viability of wild-caught salmon, especially since the farmed variety are often carrying diseases such as infectious salmon anemia virus, and that's just one of several.

Deemed 'Toxic,' but Still Added to Farmed Fish Food

Science reported that a worldwide assessment of the threat to the salmon market as a whole can be answered by the 13 persistent organic pollutants, including PCBs ([polychlorinated biphenyls](#)), known as one of the most toxic and environmentally persistent chemicals ever created.

The Environmental Protection Agency (EPA)¹⁵ notes that PCBs (and there are dozens of trade names for them) don't break down, can remain for long periods cycling between air, water and soil, travel long distances and can be taken up into the bodies of small organisms and fish.

“Studies in humans support evidence for [potential carcinogenic](#) and noncarcinogenic effects of PCBs,” it notes, but the list of potential health problems for humans and animals is frankly staggering. Sure, industries are now being regulated to more stringent laws, but once it’s out there, trying to take it back is no longer possible. The EPA site details a list of life-altering and hair-raising consequences PCBs can cause or impact:

Cancer	Immune system
Reproductive system	Nervous system
Endocrine system	Neurological effects

Keep in mind that PCBs are only one of many pollutants associated with farmed fish. One of the most treacherous is ethoxyquin, a chemical developed by Monsanto in the 1950s as a synthetic tire chemical. Ethoxyquin is found only in farmed salmon — not in wild.

It’s used as a rubber stabilizer, pesticide, preservative and antioxidant all in one, and is a suspected carcinogen that “caused chromosomal aberrations, holes and fractures in chromosomes” of human cells and “was chemically toxic, destroyed chromosomes and DNA,” according to a Norwegian newspaper review.¹⁶

Because it prevents fat oxidation, it’s used in some animal feeds,¹⁷ including fish food. According to Nutraceutical Business Review, the European Food Safety Authority’s description of the chemical was pretty clear: Ethoxyquin is “considered to be toxic to aquatic organisms based on the acute toxicity data provided for fish, daphnia and algae.”¹⁸

Should You Eat Fish?

People have been eating fish since the dawn of man. It’s been a staple for humankind in every area where fish can swim and has without a doubt been one of the foods that has kept humans alive, but in many more ways than offering mere sustenance. It’s a lean protein, with vitamins, minerals, fatty acids and numerous compounds that can stave off high blood pressure, macular degeneration, depression, osteoporosis and [diabetes](#).

Another new study in the journal *Circulation* reveals that people who eat two or more servings of oily fish per week had a “significantly lower risk of heart attack and stroke,” even in individuals who don’t make “eating healthy” a priority. The study authors wrote:

“We conclude that one to two seafood meals per week be included to reduce the risk of congestive heart failure, coronary heart disease, ischemic stroke, and sudden cardiac death, especially when seafood replaces the intake of less healthy foods.”¹⁹

One of the most glowing reviews of fish as a healthy food was in light, again, of the high levels of omega-3s, with a notation that they’re one reason the [Mediterranean diet](#) has been all the rage over recent years. Omega-3s enter your cell membranes, which is important for cell signaling and essential for an optimally functioning heart. Forbes noted a number of other perks:

“Research has focused largely on the anti-inflammatory influence of omega-3s, which counters the hardening and narrowing of arteries that characterizes heart disease. Diets higher in omega-3s are also linked to lower triglyceride levels and fewer fatty deposits that clog arteries ...

But don’t think a Friday night plate of fried catfish and slaw will fill the need. Eating fried seafood doesn’t provide the same benefits, and likely contributes to the very problem eating non-fried fish

helps improve. The results of one study suggested that people who ate fried fish at least once a week were nearly 50 percent more likely to develop heart failure than those who rarely ate fried seafood.”²⁰

So should you eat fish? Again, pregnant moms and young children — and really, everyone — should steer clear of high-mercury seafood, but if you choose the healthiest options, the benefits are worth the risk for most people.

As a general rule, your best choices are small, cold-water, fatty fish, which are an ideal source of omega-3s with a low risk of contamination. The healthiest fish I suggest you consider eating more often include anchovies, sardines, mackerel, herring and wild-caught Alaskan salmon — step away from farmed varieties, both for your health and for the environment.

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